

LIST OF CLAIMS / AMENDMENTS

Claims 2, 5, 11, 15, 23, 25, 28, 37, 40, and 45 were canceled previously.

Please amend claims 1, 3, 6-7, 10, 12, 18-19, 24, 30, 35, and 50 as shown herein.

Claims 1, 3-4, 6-10, 12-14, 16-22, 24, 26-27, 29-36, 38-39, 41-44, and 46-58 are pending as follows:

1. (currently amended) Computer-readable storage media encoded with computer-executable instructions that implement a visual query system, comprising:

query criteria of a query expression displayed as shapes that have a semantic relationship which represents logical associations between the query criteria, where a first shape of query criteria is displayed proximate a second shape of query criteria within a visual query definition that ~~is bordered~~ includes a visual border to define a Boolean association between the first shape and the second shape that are both displayed within the visual border of the visual query definition;

a query statement generator configured to:

determine the Boolean association corresponding to the semantic relationship of the shapes;

generate a SQL query statement for each shape of query criteria;

combine the SQL query statements according to the Boolean association to generate the query expression;

generate a query result of the combined SQL query statements that

form the query expression; and

a user interface configured to display the query result of the query expression.

1 2. **(canceled)**

2
3 **3. (currently amended)** Computer-readable storage media encoded with
4 computer-executable instructions that implement the [[A]] visual query system as recited
5 in claim 1, wherein the first shape of query criteria is displayed proximate the second
6 shape of query criteria such that the first shape has an AND Boolean association with the
7 second shape.

8
9 **4. (previously presented)** Computer-readable storage media encoded with
10 computer-executable instructions that implement the visual query system as recited in
11 claim 1, wherein the first shape of query criteria is displayed proximate the second shape
12 of query criteria within the visual query definition such that the first shape has an AND
13 Boolean association with the second shape within the visual query definition.

14
15 **5. (canceled)**

16
17 **6. (currently amended)** Computer-readable storage media encoded with
18 computer-executable instructions that implement the visual query system as recited in
19 claim 1, wherein a first set of query criteria are displayed within the visual query
20 definition, and wherein a second set of query criteria are displayed within an additional
21 visual query definition, the first set of query criteria including the second set of query
22 criteria such that the additional visual query definition is displayed within the visual
23 border of the visual query definition.

1 **7. (currently amended)** Computer-readable storage media encoded with
2 computer-executable instructions that implement the visual query system as recited in
3 claim 1, wherein:

4 a first set of query criteria are displayed within the visual query definition on the
5 user interface;

6 a second set of query criteria are displayed on the user interface within an
7 additional visual query definition, the ~~first~~ first set of query criteria including the second
8 set of query criteria such that the additional visual query definition is displayed within the
9 visual border of the visual query definition; and

10 the query statement generator is further configured to generate a first query result
11 of the first set of query criteria and generate a second query result of the second set of
12 query criteria such that the first query result and the second query result ~~can be~~ are
13 displayed as multiple query results.

1 **8. (previously presented)** Computer-readable storage media encoded with
2 computer-executable instructions that implement the visual query system as recited in
3 claim 1, wherein an additional shape of query criteria is configured for display with the
4 query criteria, and wherein the query statement generator is further configured to:

5 determine an additional Boolean association corresponding to the semantic
6 relationship of the additional shape of query criteria;

7 generate an additional SQL query statement for the additional shape of query
8 criteria;

9 combine the SQL query statements and the additional SQL query statement
10 according to the additional Boolean association; and

11 update the query result of the combined SQL query statements and the additional
12 SQL query statement.

13
14 **9. (previously presented)** Computer-readable storage media encoded with
15 computer-executable instructions that implement the visual query system as recited in
16 claim 1, further comprising data tables that maintain data criteria, and wherein the query
17 criteria is displayed in user-identifiable terms as metadata that correlates to the data
18 criteria maintained in the data tables.

1 **10. (currently amended)** Computer-readable storage media encoded with
2 computer-executable instructions that implement the visual query system as recited in
3 claim 1, wherein the user interface is further configured to:

4 display criteria selections that include the query criteria within a criteria selection
5 display on the user interface;

6 display the shapes of query criteria within the visual query definition on the user
7 interface; and

8 display the query result within the visual border of the visual query definition on
9 the user interface.

10 **11. (canceled)**

1 **12. (currently amended)** Computer-readable storage media encoded with
2 computer-executable instructions that implement a visual query system, comprising:

3 a visual query definition displayed to associate with a visual border that associates
4 query criteria of a query expression, the query criteria displayed as shapes within the
5 visual border of the visual query definition such that proximate positions of the query
6 criteria define query criteria associations;

7 a query statement generator configured to:

8 determine a query statement association for each display
9 relationship of the query criteria;

10 generate a SQL query statement for each of the query criteria;

11 combine the SQL query statements according to the query
12 statement associations to generate the query expression; and

13 generate a query result of the combined SQL query statements that
14 form the query expression for display in the visual query definition; and

15 a user interface configured to display the query result of the query expression
16 within the visual border of the visual query definition on the user interface.

17
18 **13. (previously presented)** Computer-readable storage media encoded with
19 computer-executable instructions that implement the visual query system as recited in
20 claim 12, wherein the visual query definition is further displayed to associate the query
21 criteria without logic operators connected between the query criteria.

1 **14. (previously presented)** Computer-readable storage media encoded with
2 computer-executable instructions that implement the visual query system as recited in
3 claim 12, wherein the query statement generator is further configured to determine the
4 query statement associations as a Boolean association for each display relationship of the
5 query criteria.

6
7 **15. (canceled)**

8
9 **16. (previously presented)** Computer-readable storage media encoded with
10 computer-executable instructions that implement the visual query system as recited in
11 claim 12, wherein a first query criteria is displayed proximate a second query criteria
12 within the visual query definition such that the first query criteria has an AND query
13 statement association with the second query criteria.

14
15 **17. (previously presented)** Computer-readable storage media encoded with
16 computer-executable instructions that implement the visual query system as recited in
17 claim 12, wherein a first query criteria is displayed proximate a second query criteria
18 within the visual query definition such that the first query criteria has an OR query
19 statement association with the second query criteria.

1 **18. (currently amended)** Computer-readable storage media encoded with
2 computer-executable instructions that implement the visual query system as recited in
3 claim 12, wherein the visual border of the visual query definition ~~is bordered to define a~~
4 ~~defines the~~ query statement association between a first query criteria displayed proximate
5 a second query criteria within the visual query definition.

6
7 **19. (currently amended)** Computer-readable storage media encoded with
8 computer-executable instructions that implement the visual query system as recited in
9 claim 12, further comprising a second visual query definition displayed to associate
10 additional query criteria of the query expression, wherein:

11 the visual query definition includes the second visual query definition displayed
12 within the visual border of the visual query definition; and

13 the query statement generator is further configured to generate a second query
14 result for the second visual query definition such that the query result and the second
15 query result ~~can be~~ are displayed as multiple query results.

1 **20. (previously presented)** Computer-readable storage media encoded with
2 computer-executable instructions that implement the visual query system as recited in
3 claim 12, wherein the visual query definition is further displayed to associate additional
4 query criteria, and wherein the query statement generator is further configured to:

5 determine an additional query statement association for a display relationship of
6 the additional query criteria;

7 generate an additional SQL query statement for the additional query criteria;

8 combine the SQL query statements and the additional SQL query statement
9 according to the additional query statement association; and

10 update the query result of the combined SQL query statements and the additional
11 SQL query statements.

12 **21. (previously presented)** Computer-readable storage media encoded with
13 computer-executable instructions that implement the visual query system as recited in
14 claim 12, wherein the user interface is further configured to:

15 display criteria selections that include the query criteria within a criteria selection
16 display on the user interface; and

17 display the query criteria within the visual query definition on the user interface.

19 **22. (previously presented)** Computer-readable storage media encoded with
20 computer-executable instructions that implement the visual query system as recited in
21 claim 12, further comprising data tables that maintain data criteria, and wherein the query
22 criteria is displayed in user-identifiable terms as metadata that correlates to the data
23 criteria maintained in the data tables.

1 **23. (canceled)**

2
3 **24. (currently amended)** Computer-readable storage media encoded with
4 computer-executable instructions that, when executed, display a user interface,
5 comprising:

6 a criteria selection display of query criteria;
7
8 a visual query definition displayed to associate the query criteria of a query
9 expression based on proximate positions of the query criteria in the visual query
10 definition and without logic operators connected between the query criteria, each of the
11 query criteria represented by a shape displayed within a visual border of the visual query
12 definition;

13 a display attribute of the visual query definition that defines a Boolean association
14 of the query criteria represented by the shapes displayed within the visual border of the
15 visual query definition; and

16 a query result displayed within the visual border of the visual query definition, the
17 query result generated from a combination of one or more query statements that are
18 combined to generate the query expression, the one or more query statements
representing a shape of query criteria and the association of the query criteria.

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20 **25. (canceled)**

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1 **26. (previously presented)** Computer-readable storage media encoded with
2 computer-executable instructions that, when executed, display the user interface as
3 recited in claim 24, wherein the query criteria are drag-and-drop query criteria from the
4 criteria selection display to the visual query definition.

5
6 **27. (previously presented)** Computer-readable storage media encoded with
7 computer-executable instructions that, when executed, display the user interface as
8 recited in claim 24, wherein the visual query definition can be copied to create a second
9 visual query definition for display on the user interface, and wherein the second visual
10 query definition is redefined in an event that the visual query definition is redefined.

11
12 **28. (canceled)**

13
14 **29. (previously presented)** Computer-readable storage media encoded with
15 computer-executable instructions that, when executed, display the user interface as
16 recited in claim 24, wherein a color of the visual query definition defines the Boolean
17 association of the query criteria represented by the shapes displayed within the visual
18 query definition.

19
20 **30. (currently amended)** Computer-readable storage media encoded with
21 computer-executable instructions that, when executed, display the user interface as
22 recited in claim 24, wherein [[a]] the visual border of the visual query definition defines
23 the Boolean association of the query criteria represented by the shapes displayed within
24 the visual border of the visual query definition.

1
2 **31. (previously presented)** Computer-readable storage media encoded with
3 computer-executable instructions that, when executed, display the user interface as
4 recited in claim 24, wherein the one or more query statements are SQL query statements,
5 and wherein the query result is generated from the combination of the one or more SQL
6 query statements.

7
8 **32. (previously presented)** Computer-readable storage media encoded with
9 computer-executable instructions that, when executed, display the user interface as
10 recited in claim 24, wherein a first shape of query criteria is displayed proximate a second
11 shape of query criteria within the visual query definition such that the first shape has an
12 AND query statement association with the second shape.

13
14 **33. (previously presented)** Computer-readable storage media encoded with
15 computer-executable instructions that, when executed, display the user interface as
16 recited in claim 24, wherein a first shape of query criteria is displayed proximate a second
17 shape of query criteria within the visual query definition such that the first shape has an
18 OR query statement association with the second shape.

19
20 **34. (previously presented)** Computer-readable storage media encoded with
21 computer-executable instructions that, when executed, display the user interface as
22 recited in claim 24, further comprising additional query criteria not associated with the
23 visual query definition and displayed to indicate the non-association.

1 **35. (currently amended)** A method, comprising:

2 displaying query criteria of a query expression as shapes on a user interface, the
3 shapes having a semantic relationship which represents logical associations between the
4 query criteria, the query criteria further displayed as a first set of query criteria within a
5 visual border of a first visual query definition, and as a second set of query criteria within
6 a visual border of a second visual query definition such that the first set of query criteria
7 includes the second set of query criteria;

8 determining a query statement association for each display relationship of the
9 shapes of query criteria;

10 generating a SQL query statement for each shape of query criteria;

11 combining the SQL query statements according to the query statement
12 associations to generate the query expression; and

13 displaying a query result of the query expression within the visual border of the
14 first visual query definition on the user interface.

15
16 **36. (original)** A method as recited in claim 35, wherein determining the
17 query statement associations includes determining a Boolean association corresponding
18 to each display relationship of the shapes of query criteria.

19
20 **37. (canceled)**

21
22 **38. (original)** A method as recited in claim 35, further comprising displaying
23 criteria selections that include the query criteria in a criteria selection display on the user
24 interface.

1
2 **39. (previously presented)** A method as recited in claim 35, further
3 comprising generating the query result of the combined SQL query statements that form
4 the query expression.

5
6 **40. (canceled)**

7
8 **41. (previously presented)** A method as recited in claim 35, wherein
9 displaying the query criteria as shapes includes displaying a first shape of query criteria
10 proximate a second shape of query criteria within the first visual query definition such
11 that the first shape has a Boolean association with the second shape.

12
13 **42. (previously presented)** A method as recited in claim 35, wherein
14 displaying the query criteria as shapes includes displaying a first shape of query criteria
15 proximate a second shape of query criteria within the first visual query definition such
16 that the first shape has an AND Boolean association with the second shape.

17
18 **43. (previously presented)** A method as recited in claim 35, wherein
19 displaying the query criteria as shapes includes displaying a first shape of query criteria
20 proximate a second shape of query criteria within the first visual query definition that is
21 bordered to define an OR Boolean association between the first shape and the second
22 shape.

1 **44. (original)** A method as recited in claim 35, wherein displaying the query
2 criteria includes displaying the query criteria in user-identifiable terms as metadata that
3 correlates to data criteria maintained in data tables.

4
5 **45. (canceled)**

6
7 **46. (previously presented)** A method as recited in claim 35, further
8 comprising:

9 adding additional query criteria as a shape on the user interface;
10 determining an additional query statement association for a display relationship of
11 the additional shape of query criteria;

12 generating an additional SQL query statement corresponding to the additional
13 shape of query criteria;

14 combining the SQL query statements and the additional SQL query statement
15 according to the additional query statement association; and

16 updating the query result displayed on the user interface to include the additional
17 query criteria.

18
19 **47. (original)** A method as recited in claim 46, wherein adding the additional
20 query criteria includes dragging-and-dropping the additional query criteria on the user
21 interface.

1 **48. (previously presented)** A method as recited in claim 35, further
2 comprising generating an audible indication corresponding to at least one of a display of
3 the query result on the user interface or an update of the query result displayed on the
4 user interface.

5
6 **49. (previously presented)** One or more computer readable storage media
7 comprising computer executable instructions that, when executed, direct a computing
8 device to perform the method of claim 35.

9
10 **50. (currently amended)** One or more computer readable storage media
11 comprising computer executable instructions that, when executed, direct a computing
12 device to:

13 display a visual query definition to associate query criteria of a query expression,
14 the query criteria displayed as shapes having display relationships within a visual border
15 of the visual query definition;

16 determine a query statement association for each shape of query criteria according
17 to the display relationships;

18 generate a query statement for each shape of query criteria;

19 combine the query statements according to the query statement associations to
20 generate the query expression;

21 generate a query result of the combined query statements that form the query
22 expression; and

23 display the query result ~~in~~ within the visual border of the visual query definition
24 on a user interface.

1
2 **51. (previously presented)** One or more computer readable storage media as
3 recited in claim 50, further comprising computer executable instructions that, when
4 executed, direct the computing device to determine the query statement association for
5 each shape of query criteria as a Boolean association.

6
7 **52. (previously presented)** One or more computer readable storage media as
8 recited in claim 50, further comprising computer executable instructions that, when
9 executed, direct the computing device to generate the query statement for each shape of
10 query criteria as a SQL query statement.

11
12 **53. (previously presented)** One or more computer readable storage media as
13 recited in claim 50, further comprising computer executable instructions that, when
14 executed, direct the computing device to display criteria selections that can be added to
15 the visual query definition.

16
17 **54. (previously presented)** One or more computer readable storage media as
18 recited in claim 50, further comprising computer executable instructions that, when
19 executed, direct the computing device to display a first shape of query criteria proximate
20 a second shape of query criteria within the visual query definition such that the first shape
21 has a Boolean association with the second shape.

1 **55. (previously presented)** One or more computer readable storage media as
2 recited in claim 50, further comprising computer executable instructions that, when
3 executed, direct the computing device to display a first shape of query criteria proximate
4 a second shape of query criteria within the visual query definition such that the first shape
5 has an AND Boolean association with the second shape.

6
7 **56. (previously presented)** One or more computer readable storage media as
8 recited in claim 50, further comprising computer executable instructions that, when
9 executed, direct the computing device to display a first shape of query criteria proximate
10 a second shape of query criteria within the visual query definition that is bordered to
11 define an OR Boolean association between the first shape and the second shape.

12
13 **57. (previously presented)** One or more computer readable storage media as
14 recited in claim 50, further comprising computer executable instructions that, when
15 executed, direct the computing device to display a first set of query criteria within the
16 visual query definition, and display a second set of query criteria within a second visual
17 query definition such that the visual query definition includes the first set of query criteria
18 and the second set of query criteria.

19
20 **58. (previously presented)** One or more computer readable storage media as
21 recited in claim 50, further comprising computer executable instructions that, when
22 executed, direct the computing device to generate an audible indication corresponding to
23 an update of the query result displayed within the visual query definition.